



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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February 3, 2014

Mr. Hugh Heine  
Planning and Environmental Branch  
U.S. Army Corps of Engineers  
Wilmington District  
69 Darlington Avenue  
Wilmington, North Carolina 28403

**Subject: EPA NEPA Review Comments on Wilmington District's DEIS "Morehead City Harbor Integrated Dredge Material Management Plan, Port of Morehead City"; CEQ #20130308**

Dear Mr. Heine:

The U.S. Environmental Protection Agency (EPA) has reviewed the subject U.S. Army Corps of Engineers' (Corps) Draft Environmental Impact Statement (DEIS) in accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. It is our understanding that the Corps initiated this Dredge Material Management Plan (DMMP) and subsequent DEIS for Morehead City Harbor to addresses dredging needs, disposal capabilities, capacities of disposal areas, environmental compliance requirements, and potential for beneficial use of dredged material and indicators of continued economic justification. We also understand that the intent of the plan is to provide sufficient disposal capacity for the 20-year period beginning in 2015 and extending through 2034.<sup>1</sup>

The plan proposed under the DMMP includes the following:

- Continued use of Brandt Island without expansion
- Disposal of coarse-grained material on the beaches of Fort Macon State Park
- Disposal of coarse-grained material on the beaches of Atlantic Beach,
- Disposal of coarse-grained material on the beaches of Shackleford Banks
- Expansion of the nearshore west placement area
- New nearshore east placement area
- Continued use of the USEPA designated Ocean Dredge Material Disposal Site (ODMDS)

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<sup>1</sup> p. XS-1

Based on our analysis of the above referenced proposed action, EPA rates this DEIS as “**EC-2**” i.e., **EPA has “Environmental Concerns and Request Additional Information”** in the Final EIS (FEIS). The EPA’s rating system criteria can be found online at:  
<http://www.epa.gov/oecaerth/nepa/comments/ratings.html>.

Our primary concerns associated with the proposed action are related to consideration of sea level rise and storm surge impacts when modeling for disposal sites, determination of sand compatibility, and ensuring compliance with State water quality standards. Overall we support the Corps preferred alternative since it will allow for beneficial use of dredge material and minimize disposal activities in the approved ODMDS. Detailed comments are enclosed with this letter which more clearly identifies our concerns and comments. We request that a dedicated section of the FEIS include specific responses to our comments.

EPA appreciates the opportunity to review the DEIS. Should the Corps have questions regarding our comments, please feel free to contact Dan Holliman of my staff at 404/562-9531 or [holliman.daniel@epa.gov](mailto:holliman.daniel@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'H. Mueller', with a long horizontal flourish extending to the right.

Heinz J. Mueller  
Chief, NEPA Program Office  
Office of Environmental Accountability

Attached: Detailed Comments

**U.S. EPA DETAILED COMMENTS  
ON THE MOREHEAD CITY HARBOR INTEGRATED DREDGE MATERIAL  
MANAGEMENT PLAN, PORT OF MOREHEAD CITY NORTH CAROLINA  
FOR THE U.S. ARMY CORPS OF ENGINEERS WILMINGTON DISTRICT**

**BACKGROUND:**

The Morehead City Harbor Integrated Dredge Material Management Plan (DMMP) for the Port of Morehead City North Carolina and Draft Environmental Impact Statement (DEIS) was prepared by the U.S. Army Corps of Engineers (Corps) Wilmington District to ensure that sufficient confined disposal facilities will be available for the next 20 years and that maintenance dredging will be performed in an environmental and economical acceptable manner. The DMMP is required to be developed for federal navigation projects when a preliminary assessment indicates insufficient capacity to accommodate maintenance dredging for at least the next twenty years. The DMMP is required to address dredging needs, disposal capabilities, capacities of disposal areas, environmental compliance requirements, and potential for beneficial use of dredged material and indicators of continued economic justification.<sup>1</sup>

The study area for the DMMP/EIS include Morehead City Harbor navigation channels, the adjacent mainland area, the beaches of Bogue Banks and Shackleford Banks, the nearshore Atlantic Ocean off of Bogue Banks and Shackleford Banks, the Morehead City Ocean Dredged Material Disposal Site (ODMDS), and the existing disposal sites of Brandt Island, Marsh Island and Radio Island.<sup>2</sup>

It is our understanding that “the integrated DMMP and Environmental Impact Statement (DMMP/EIS) evaluates the return of sand lost from Shackleford Banks due to maintenance of the navigation channel, to the beaches of Shackleford Banks, which is part of the Cape Lookout National Seashore (CALO). The DMMP/EIS will be used by both Wilmington District and National Park Service (NPS) to evaluate the decision to place sand on Shackleford Banks. The NPS and the Corps have formally agreed to be Federal cooperating agencies on the Morehead City Harbor DMMP/EIS.”<sup>3</sup>

**ALTERNATIVES PROPOSED:**

Two Alternatives were carried forward in the DMMP/EIS:

- 1) No Action (avg. annual cost \$6.4 million)
- 2) Proposed Measures (avg. annual cost \$11.9 million)
  - a. Brandt Island Upland Disposal Site – **In Use**
  - b. Place coarse-grained material ( $\geq 90\%$  sand) on Bogue Banks – **In Use**
  - c. Morehead City Ocean Dredged Material Disposal Site (ODMDS) – **In Use**

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<sup>1</sup> p. XS-1

<sup>2</sup> Cited directly from XS-1

<sup>3</sup> Cited directly from XS-1

- d. Expand nearshore (ebb tide delta) placement area west of Beaufort Inlet – **Proposed**
- e. Create nearshore (ebb tide delta) placement area east of Beaufort Inlet – **Proposed**
- f. Place coarse-grained material ( $\geq 90\%$  sand) on Shackleford Banks - **Proposed**
- g. Place Inner Harbor material  $\geq 80\%$  sand in nearshore placement areas – **Possible Future Option**
- h. Expand and raise Brandt Island dike – **Possible Future Option**<sup>4</sup>

The primary difference in cost from the no action to the proposed plan is due to the difference in volumes between minimum tolerances and the full channel maintenance envisioned by this DMMP. In addition, the no action plan does not include disposal of material on Shackleford Banks or in the ebb tide delta east of the Inlet.<sup>5</sup>

## **EPA COMMENTS:**

### NEPA Efficiency

EPA agrees with the Corps approach of including the proposed action at Shackleford Banks in the DMMP/EIS to minimize redundancy of a separate study and NEPA document.

### Public Involvement and Comprehensive Nature of DMMP

EPA believes the DMMP development process and the use of a Project Delivery Team (PDT), which included state and federal resource agencies, interest groups, and stakeholders was an efficient strategy to involve all interested parties in the decision process for the DMMP. We also believe that the DMMP process for Morehead City Harbor has been a very comprehensive process that has resulted in the evaluation of over 100 dredging and disposal options.<sup>6</sup>

### Alternatives Considered But Not Carried Forward

EPA appreciates that multiple alternatives were considered (but not carried forward) and discussed in the EIS. A clear description of the alternatives was provided in the EIS along with a description of the issues associated with the alternative and the reasoning for not carrying forward alternatives.

### Characterization of Sand

Section 4.1 provides a discussion of sand characterization in the project area. EPA notes that methods employed for sampling and testing (characterizing) the sand at Shackleford Banks and Bogue Banks appears to be consistent (ASTM D422 Method and ASTM D 2487). However, we do have concern that samples taken at Bogue Banks were taken 9 years prior to samples taken at Shackleford Banks. Since these areas are altered systems with sand being moved and disposed

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<sup>4</sup> Table 3-26

<sup>5</sup> p. 116 of DMMP/EIS

<sup>6</sup> p. xs-4

of in non-natural processes, one would expect that samples taken 9 years apart may not be comparable. EPA recommends the FEIS include a discussion in the FEIS on why sampling effort was separated by several years and the potential impact on the overall analysis.

Section 5.1.2 – The majority of this section is focused on the sand grain size analysis for sand on Shackleford Banks (subaerial and submarine) however the same level of discussion is not provided for the beaches of Bogue Banks. EPA recommends a similar discussion be provided in the FEIS related to dredge material and the suitability for the beaches of Bogue Banks in this section.

#### Storm Surge

The sea level modeling presented in the DEIS doesn't appear to include storm-surge impacts upon the project and any associated impacts on disposal sites (i.e., proposed nearshore and beach placement areas) or shoaling rates, e.g., impacts to channel dredging frequency. Because sea level is not expected to gently rise independent of frequent and high energy storms North Carolina is known for, EPA recommends the sea level rise analysis include the appropriate storm surge modeling.

Some examples of historical storm activity in North Carolina include:

- One hundred and five tropical storms and hurricanes impacted North Carolina during the 20th century. Sixty four hurricanes made landfall between 1900 and 1999. The two decades in the 1940s and 1950s represent an active period followed by a relatively inactive period during the 1960s and 1970s. This was followed by two decades (1980s and 1990s) of frequent hurricane landfall in North Carolina.<sup>7</sup>
- While nor'easters are not as strong as tropical storms, they still have far reaching impacts as they are regional in extent, tend to move slow allowing the sea to build up over several days to pound the coast line through multiple tidal cycles. Up to 35 of these extra-tropical storms can occur every year during the fall to early spring.<sup>8</sup>

#### Sea Level Rise Historic Loss Rate Calculations

EPA recommends the historic loss rate calculations<sup>9</sup> used to replace sediments lost in the proposed disposal areas appropriately reflect erosion rates associated with seal level rise and storm surges.

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<sup>7</sup> S. R. Riggs, S. J. Culver, et al., North Carolina's Coasts in Crises: a vision for the future, Department of Geological Sciences, Thomas Harriot College of Arts and Sciences, Institute for Coastal Science and Policy, East Carolina University. Available at <http://www.geology.ecu.edu/NCCoastsinCrisis.pdf>

<sup>8</sup> S. R. Riggs, S. J. Culver, et al., North Carolina's Coasts in Crises: a vision for the future, Department of Geological Sciences, Thomas Harriot College of Arts and Sciences, Institute for Coastal Science and Policy, East Carolina University. Available at <http://www.geology.ecu.edu/NCCoastsinCrisis.pdf>

<sup>9</sup> Section 3.2.4.2, p. 83.

### Nearshore East New Disposal Site

According to the DEIS, the net flow within this region of Shackleford Banks is westerly, toward the Inlet. It is stated in the DEIS that “Material placed within this area should move toward the west and nourish the eastern side of the ebb tide delta.”<sup>10</sup> Placing sand in the Shackleford Banks nearshore disposal area east of the channel seems counterintuitive. The DEIS figures<sup>11</sup> appear to show accretion occurrences in the channel, which could be from sediment sources lying to the east of the channel since the net flow in this region is westerly, toward the channel. Consequently, the EIS should explain whether dredged material placed east of the channel will accrete in the channel requiring additional maintenance dredging.

### Erosion Hot Spot

EPA recommends the EIS address why an erosion hot spot located just west of the northern most visible portion of the navigation channel and has experienced extensive vertical erosion up to 38 feet has not been considered for disposal of appropriate dredged material quality. It is unclear whether this erosional feature is associated with the erosion of the down drift beaches. The beaches the Corps is proposing placing sediments  $\geq 90\%$  sand, i.e., Figure 3-12.<sup>12</sup> EPA recommends additional discussion be added to the FEIS related to the pros/cons/issues related to disposal in this area.

### Volume of Dredged Material Types

The Corps has categorized zones of the channel it maintains based on sediment types. However, it is unclear the volumes of each sediment type it anticipates dredging on annual or every 3-year cycle for the life of the DMMP. This has been done for the Interim Operations Plan,<sup>13</sup> which is a three-year plan, not a 20-year plan as is the proposed action. Consequently, it appears unclear how much material will be placed in nearshore areas and on beaches based upon the schedule provided.<sup>14</sup>

- EPA notes the DEIS statement, *The quantity of material to be placed in this new nearshore area over the three year cycle of the proposed DMMP is expected to be the equivalent of the historic loss rate for the area over the three year cycle which is 339,000 cubic yards of sand (113,000 cy per year).*<sup>15</sup> The amount to be placed is not the same as the amount expected to be dredged of this type material.

### Bathymetric Changes

The time series Figures 3-12 (1974 - 1998),<sup>16</sup> 3-13 (1998 - 2005),<sup>17</sup> and 3-14 (2005 - 2009)<sup>18</sup> are

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<sup>10</sup> Section 3.2.4.2, p. 84.

<sup>11</sup> Figures 3-13 (p. 67), 3-14 (p. 68), and 3-16 (p. 73).

<sup>12</sup> Figure 3-12; p. 66.

<sup>13</sup> Section 2.1, pp. 15 – 16.

<sup>14</sup> The schedule per section 3.4.2, figures 3-38 through 3-40, pp. 140 – 142.

<sup>15</sup> Section 3.2.4.2, p. 83.

<sup>16</sup> P. 66.

<sup>17</sup> P. 67.

very helpful to understanding bathymetric changes associated with longshore drift, more so than the time-averaged Figure 3-15 (1974 – 2009).<sup>19</sup>

- These time series may be capturing a cycle of accretion and erosion. The definition of such a cycle could prove useful for determining the appropriate times to deposit dredged material to keep it in the littoral system and to minimize accretion in the channel. EPA notes these figures are based upon a collection of a mere four surveys<sup>20</sup> and may not truly reflect ongoing conditions.
- EPA recommends the proposed monitoring plan provide sufficient data to potentially modify and assess ongoing operations and its impacts to the nearshore disposal site and associated impacts to the channel associated with dredged material placement into the proposed new Shackleford Banks nearshore disposal site.

#### Sand Compatibility

EPA appreciates the discussion provided in the DEIS relating to the NC Technical Standards for Beach Fill Projects (15A NCAC 07H .0312). EPA also notes that “Within the NC Technical Standards, characterization of the recipient beach is not required for the disposal of sediment directly from and completely confined to a federally or state maintained navigation channel.”<sup>21</sup> However, the Corps used sampling methods similar to the NC Technical Standards when sampling Shackleford Banks beach.

The Corps indicates that the Morehead City Harbor material will be compatible for placement on Shackleford Banks based on the criteria in the NC Technical Standards (p.225-226). However, the same analysis does not appear to be conducted for Bogue Banks beaches. Please clarify.

#### Funding for Future Proposed Measures

Funding for projects that are being considered under the DMMP that are not currently proposed but may be future options should be discussed (Projects f-h under Proposed Measures Above). Will the funding be 100% State or Federal? Also, EPA recommends that the likelihood of funding for future project options be discussed in the FEIS.

#### State 401 Certifications

EPA is supportive of the conditions outlined in the issued State 401 certifications for the subject project (Appendix D). Ensuring that the proposed activities are not causing or contributing to violations of State Water Quality Standards should be a principal focus when determining appropriate BMPs and monitoring.

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<sup>18</sup> P. 68.

<sup>19</sup> P. 69.

<sup>20</sup> Section 3.2.4.1.

<sup>21</sup> p. 224 of DEIS

### Wilderness Character of Shackleford Banks

EPA recommends adding examples of past NPS activities in designated wilderness areas that are comparable to the actions proposed at Shackleford Banks in the DEIS.

### Cumulative Impacts Analysis

Appendix K - EPA notes that a Cumulative Impact Analysis (CIA) was provided in Appendix K of the DEIS. Based on our review, it appears that several similar actions (federal and non federal) projects have been identified in the CIA. EPA finds this information particularly relevant to this discussion for the proposed actions in the Morehead City Harbor DMMP DEIS and recommends that a summary of the CIA be included in the main body of the FEIS. Table K-2 provides a clear description of federal and non-federal beach nourishment projects in North Carolina and we believe this type of information would be well suited to be part of the main DMMP/EIS document. EPA recommends adding a summary of Appendix K to the main document of the FEIS.

### Editorial Comments

- **Page 1** – 1<sup>st</sup> sentence – acronym for Corps is missing.
- **Figure 1-1** – DMMP Final Phase – Years should be updated
- **Figure 1-3** – Non-federal berthing areas should be more clearly defined in this figure
- **Table 2-3** – Units need to be added to this table (dollars?)
- **Table 2-5** – The reason for the increase in barge traffic should be discussed in the text of the EIS
- **Pages 26-27** – Please clarify maximum vessel draft for Morehead City Harbor (38.5 or 44ft)
- **Chapter 3** – EPA notes that a significant portion of this chapter is dedicated to discussion of sand loss at Bogue Banks and Shackleford Banks, however it may be more appropriate for this discussion to be in Chapter 2 – Existing Conditions.
- **Section 3.1** – No action plan description – recommend better explanation of why the no action is not a sustainable plan
- **Section 3.2.2** – Recommend expansion of discussion on why disposal of material on Shackleford Banks was previously not consistent with NPS Management Policies
- **Section 3.2.5.2 and Section 3.2.5.3** - The DEIS is confusing regarding when the Brandt Island disposal site will reach its capacity. EPA recommends clarification in the FEIS. For Example:

- In one section the DEIS states *Once Brandt Island reaches capacity in 2028 ....*<sup>22</sup>
- Another section states *Brandt Island is not expected to reach capacity for at least the next 20 years.*<sup>23</sup> (which is defined in another section as 2034<sup>24</sup>)

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<sup>22</sup> Section 3.2.5.2, p. 89.

<sup>23</sup> Section 3.2.5.3, p. 91.

<sup>24</sup> *This DMMP will ensure sufficient disposal capacity for the 20-year period beginning in 2015 and extending through 2034.* ES. P. xs-1.



- **Figure 3-9** – The station symbol should be added to the legend
- **Figure 3- 19** - West Throat Area, is the only one in the time series that depicts *net loss* in the color blue. The other figures use the color red. Is this a typo?
- **Page 115** – It's a little unclear why construction of a terminal groin would be inconsistent with NPS management policies when disposal of dredge material on Shackleford Banks would be consistent with this policy. Recommend clarification.
- **Page 144** – Environmental Considerations – What about water quality? We recommend water quality be added as a consideration here.
- **Figure 4-5** – Does this mean that Morehead City Harbor dredge material is best suited from the trough to -24ft? Please clarify.
- **Table 5-1** – EPA recommends adding categories that separate positive and negative consequences to this table in the FEIS.